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ASSIGNMENT BOOKLET
Mathematics 8
Unit 3 Assignment

FOR STUDENT USE ONLY	
Date Assignment Submitted: _____	(If label is missing or incorrect) Student File Number: _____
Time Spent on Assignment: _____	Module Number: _____

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Assigned Teacher: _____

Assignment Grading: _____

Graded by: _____

Date Assignment Received:

Student's Questions and Comments

Apply Module Label Here

Name
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Please verify that preprinted label is for correct course and module.

Teacher's Comments

_____
Teacher

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- Has your work been reread to ensure accuracy in spelling and details?
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Mathematics 8

Learn EveryWare

Unit 3

Operations with Fractions

Assignment Booklet

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Summary

	Total Possible Marks	Your Mark
Lesson 1	22	
Lesson 2	20	
Lesson 3	26	
Lesson 4	20	
Lesson 5	21	
Lesson 6	23	
	132	

Teacher's Comments

Mathematics 8
Unit 3: Operations with Fractions
Assignment Booklet
ISBN 978-0-7741-3141-4

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Students	✓
Teachers	✓
Administrators	
Home Instructors	
General Public	
Other	

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- Alberta Education, **http://www.education.gov.ab.ca**
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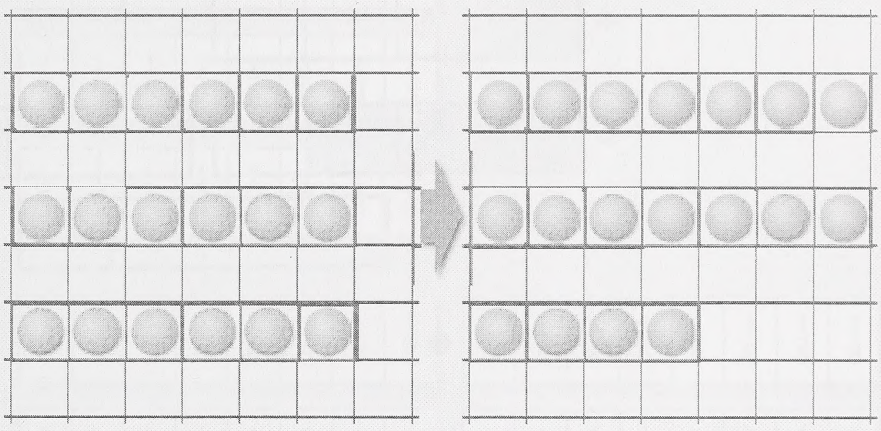
UNIT 3 ASSIGNMENT BOOKLET

The value of each assignment and each question is stated in the left margin.

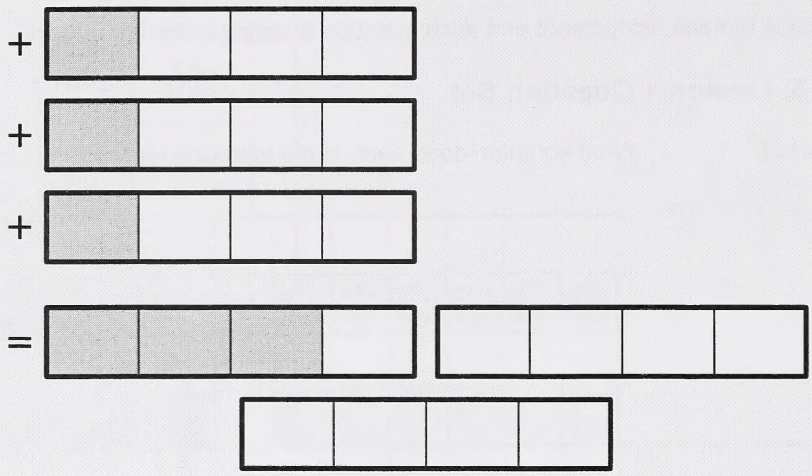
Unit 3: Lesson 1 Question Set

(8 marks) 1. What equation does each of the following represent?

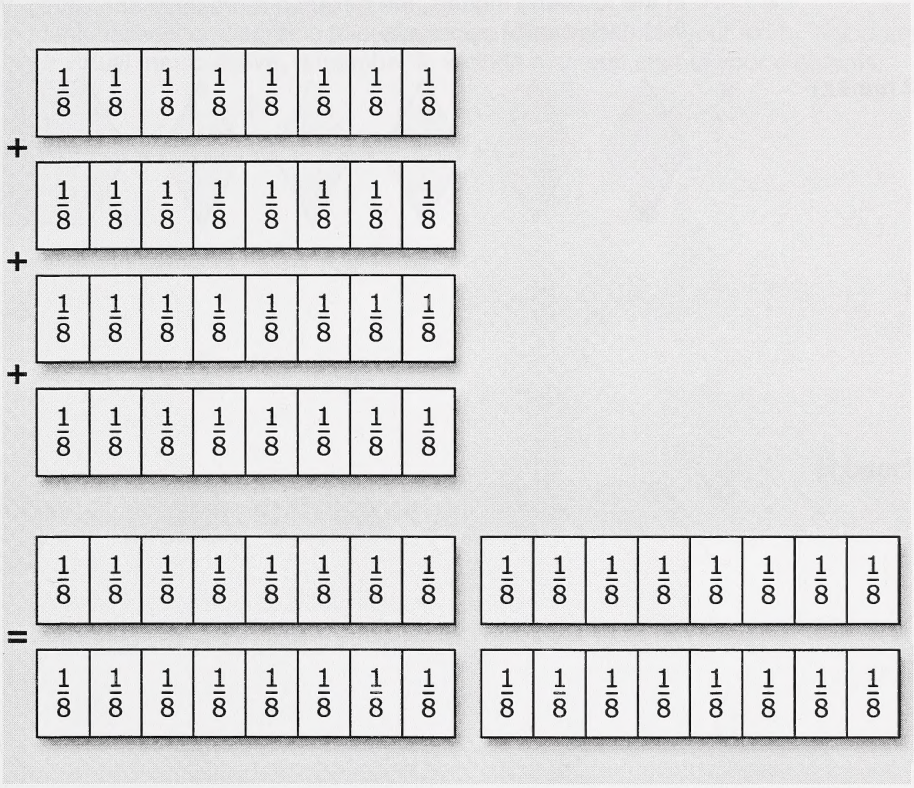
a.



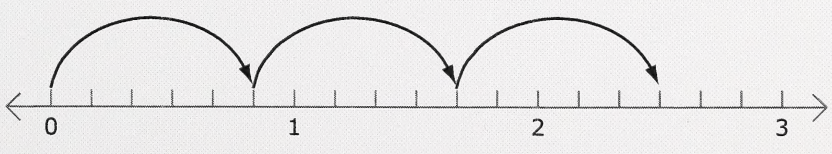
b.



c.

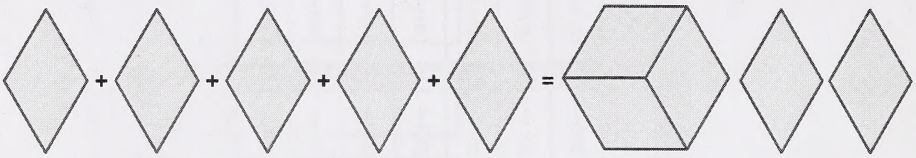


d.

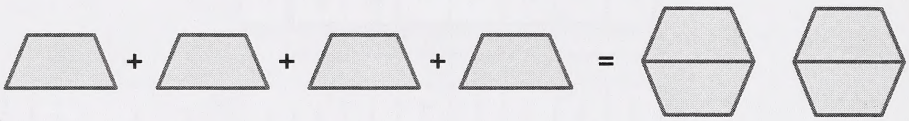


2. In the following models, the hexagon represents one whole. Write the equation that each model represents.

(2 marks) a.



(2 marks) b.



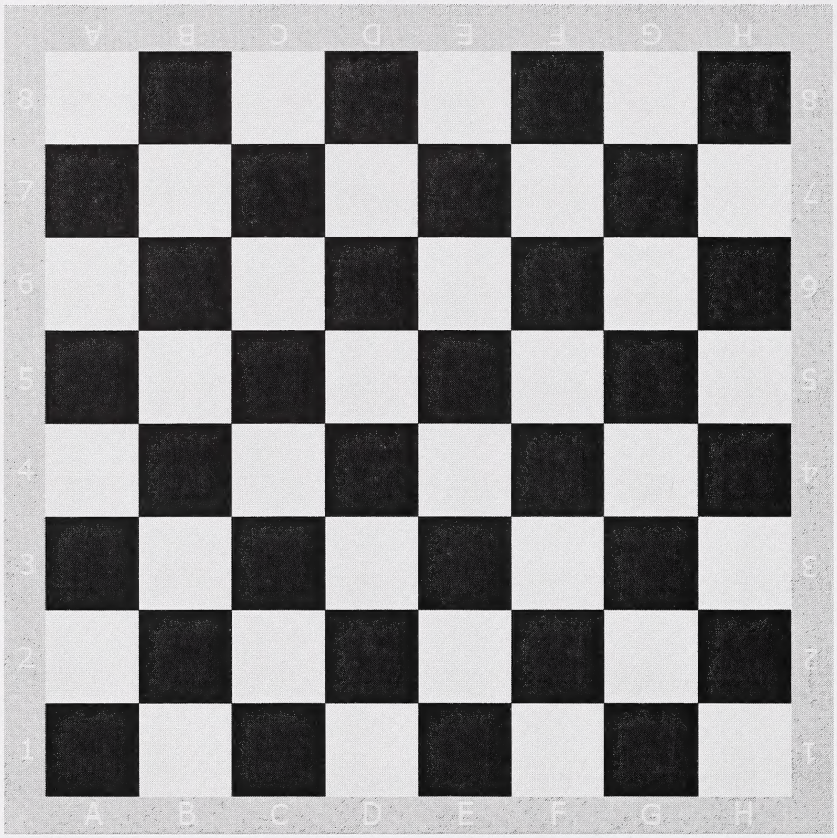
(6 marks) 3. Use manipulatives or diagrams to evaluate the following. Show your work. If you are using a virtual manipulative, remember to include a screen shot of your diagrams.

a. $2 \times \frac{1}{4}$

b. $4 \times \frac{1}{6}$

(3 marks) 4. State a problem that would use the expression $\frac{1}{6} \times 12$ in its solution. (You do not have to solve your problem.)

(1 mark) 5. Chess is one of the most popular games in the world. There are millions of players worldwide. Hal and Chad are two of these players. Hal and Chad examined their chessboard, which had a playing surface of 400 cm^2.



They wondered what expression to use to find the combined area of the black squares. Chad suggested that to find the number of square centimetres of the black squares, you would use the expression $\frac{1}{2} \times 400$.

Give a reason why the fraction $\frac{1}{2}$ should be part of the expression.

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Unit 3: Lesson 2 Question Set

1. Jaya used a set of pattern blocks to model the division $\frac{2}{3} \div 4$. She decided to let the hexagon represent one whole.

(3 marks) a. What block will represent the quotient? Show how you know which block represents the quotient.

(2 marks) b. Based on the way Jaya modelled the division with pattern blocks, what is the quotient? Explain.

(6 marks) 2. Use diagrams to determine the quotients for the following. Show your work.

a. $\frac{4}{5} \div 2 =$

b. $\frac{2}{3} \div 4 =$

(4 marks) 3. Mike found he used $\frac{1}{4}$ of a tank of gasoline over three days of driving to work and back home. On the average, what fraction of a tank did he use each day? Show your work.

4. Typically, Iqaluit has frost on $\frac{3}{4}$ of the days of the year. Compared to Vancouver, Iqaluit has frost on five times as many days of the year. Based on this information, Elisapie determined what fraction of the days of the year Vancouver has frost.

(1 mark) a. What division expression could Elisapie have used to determine what fraction of the days of the year Vancouver has frost?

(3 marks) b. Evaluate this division expression using a model. Show your work.

(1 mark) c. Write a statement that answers the question about the fraction of the days of the year that Vancouver has frost.

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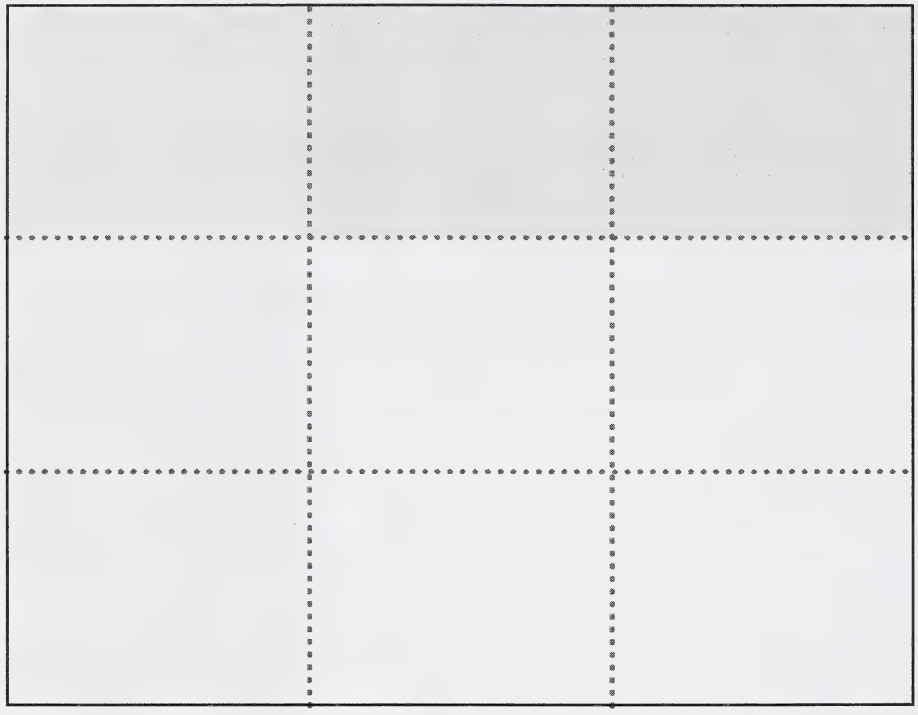
Unit 3: Lesson 3 Question Set

(3 marks) 1. A student drew this diagram to represent the multiplication of two proper fractions.



What is the value of the product according to the student's diagram? Explain.

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_____

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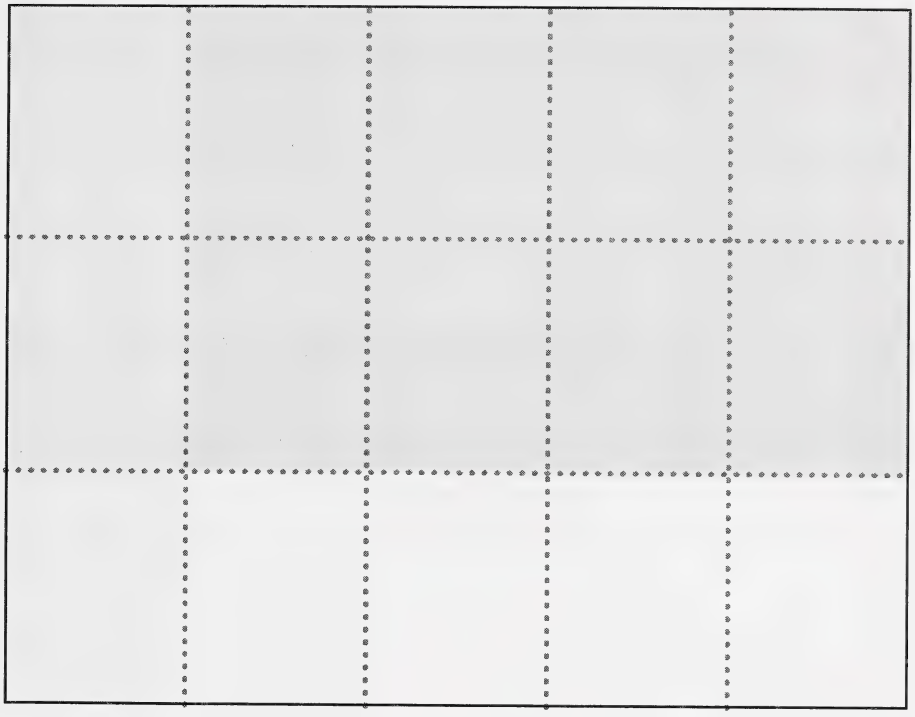
(7 marks) 2. A student folded and coloured a sheet of paper as follows:



Write the multiplication statement that is modelled by the student's sheet of paper. Explain your answer.

(4 marks) 3. Complete the following calculations. Show your work.

a. $\frac{2}{5} \times \frac{2}{3} =$

b. $\frac{5}{6} \times \frac{2}{3} =$

(6 marks) 4. Use estimation to determine whether the product is closest to 0, $\frac{1}{2}$, or 1. Show your work.

a. $\frac{3}{5} \times \frac{4}{5}$

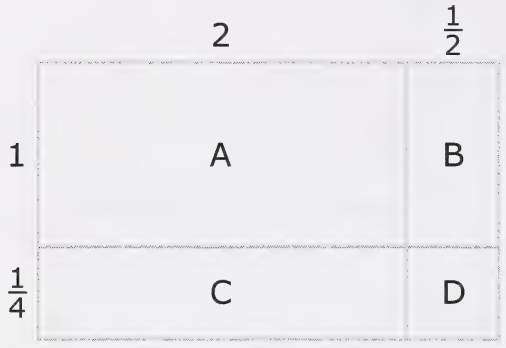
b. $\frac{1}{8} \times \frac{7}{9}$

(3 marks) 5. Karo, her younger brother, Kenji, and their father measured their heights. When their father looked at their measurements, he found that Karo was $\frac{3}{4}$ of his own height. In turn, Kenji was just $\frac{4}{5}$ of Karo's height. Determine Kenji's height as a fraction of his father's height. Show your work.

(3 marks) 6. A chimp sleeps $\frac{1}{2}$ as much as a two-toed sloth sleeps. A horse sleeps $\frac{1}{2}$ as much as a chimp. Determine the amount a horse sleeps as a fraction of the amount a two-toed sloth sleeps.

Unit 3: Lesson 4 Question Set

1. A student made the following diagram to model the multiplication of two mixed numbers.



(2 marks) a. What multiplication does the diagram represent?

(4 marks) b. Determine the area of each section of the rectangle. Show your work.

(2 marks) c. What is the area of the rectangle containing sections A, B, C, and D? Show your work.

(1 marks) d. What is the value of the product represented by the diagram?

(3 marks) 2. Estimate the value of $3\frac{1}{6} \times 3\frac{5}{6}$ without multiplying the mixed numbers themselves. Explain how you made the estimate.

(8 marks) 3. The width of the Alberta flag must be $1\frac{4}{7}$ times the height of the shield displayed on the flag. The length of the flag must be $3\frac{1}{7}$ times the height of the shield. Determine the dimensions of an Alberta flag that is to have a shield $1\frac{1}{4}$ m high. Express your dimensions as mixed numbers in lowest terms. Show your work.

Unit 3: Lesson 5 Question Set

(8 marks) 1. Use diagrams to determine the quotients.

a. $\frac{5}{8} \div \frac{1}{4} =$

b. $1\frac{2}{3} \div \frac{2}{5} =$

(4 marks) 2. Estimate the following quotients. **Hint:** Use rounding to get numbers that are easier to work with. Show your work or your thinking process.

a. $4\frac{1}{5} \div 1\frac{5}{6}$

b. $11\frac{9}{10} \div 3\frac{1}{6}$

(5 marks) 3. Lori's math group summarized information comparing the area of Canada to Russia and to the United States.

AREA COMPARISON OF RUSSIA AND CANADA

Country	Area Compared to Russia	Area Compared to Canada
Canada	$\frac{3}{5}$	n/a
Russia	n/a	$1\frac{2}{3}$

AREA COMPARISON OF THE UNITED STATES AND CANADA

Country	Area Compared to Canada	Area Compared to the U.S.
U.S.	$\frac{24}{25}$	n/a
Canada	n/a	$1\frac{1}{24}$

They noticed that in these comparison tables, a larger fraction leads to a smaller mixed number. They wondered how these cell entries are related mathematically.

After reading more of Lesson 5 in the textbook, one of the group members, Brent, exclaimed that in each table the entry in one cell is the reciprocal of the other.

Indicate whether Brent's conclusion was right or wrong. Include your calculations.

(4 marks) 4. The area of Russia is $1\frac{2}{3}$ the area of Canada. Russia's area is $\frac{1}{30}$ of the whole Earth's surface. Lori seemed to remember that Canada covers $\frac{1}{50}$ of the Earth's surface. Determine whether Lori remembered correctly. Show your calculations.

Hint: Think of the area of the whole Earth as one unit. Then Russia's area is $\frac{1}{30}$ units, and Lori remembers Canada's area to be $\frac{1}{50}$ units. Then the problem is like showing through a calculation that the area of Canada really is $\frac{1}{50}$ units.

Unit 3: Lesson 6 Question Set

(9 marks) 1. Evaluate the following expressions. Show your calculations.

a. $1\frac{1}{2} \div \frac{1}{4} + 3\frac{1}{2} \times 2 =$

b. $\left(5\frac{1}{4} - 1\frac{1}{4}\right) \times \frac{1}{2} + 1\frac{1}{6} =$

c. $\left(2\frac{1}{2} - \frac{3}{4}\right) \div 7 \times 2 =$

(8 marks) 2. Vikram works in an auto-parts store. He works 8 hours each day in a regular work day. When he works a longer day, he earns time-and-a-half for the extra hours. His regular hourly pay is $12 for each hour worked.

One day, Vikram worked a longer day to stock shelves with some new automotive parts. Vikram worked a total of $10\frac{1}{2}$ h. How much does Vikram earn on this longer work day? Show your calculations.

(6 marks) 3. The student council at one school sold advertisement space in their yearbook. The revenue would pay for the cost of publishing the yearbook in a hardcover version. The advertizing space was sold in fractions of pages at the following rate:

COST OF ADVERTISEMENT SPACE IN THE YEARBOOK

Size of Advertisement	Price ($)
1 whole page	200
$\frac{1}{2}$ of a page	140
$\frac{1}{4}$ of a page	80
$\frac{1}{8}$ of a page	45
$\frac{1}{16}$ of a page	30

Emily, one of the student members of the council, sold the following advertisement spaces to local businesses:

- three $\frac{1}{2}$-page spaces
- four $\frac{1}{8}$-page spaces
- two whole page of space

a. Calculate the number of pages Emily sold in total. Show your work.

b. What revenue was made from the advertisement space sold by Emily? Show your calculations.

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